

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

**BEST AVAILABLE IMAGES**

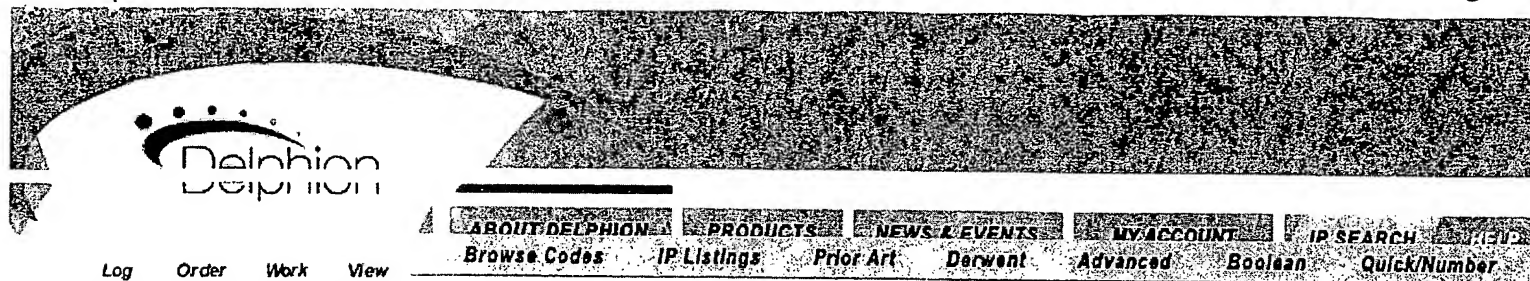
Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**



Other Views:

[INPADOC](#)

Title: **JP10064549A2: NONAQUEOUS ELECTROLYTE SECONDARY BATTERY**  
 ▶ [Want to see a more descriptive title highlighting what's new about this invention?](#)

Country: **JP Japan**  
 Kind: **A**

Inventor(s): **MURAOKA NORIKI  
 OZAKI YOSHIYUKI  
 KOBAYASHI SHIGEO  
 WATANABE SHOICHIRO**

Applicant/Assignee: **MATSUSHITA ELECTRIC IND CO LTD**  
[News, Profiles, Stocks and More about this company](#)



Issued/Filed Dates: **March 6, 1998 / Aug. 23, 1996**

Application Number: **JP1996000222114**

IPC Class: **H01M 4/62; H01M 4/02; H01M 10/40;**

▶ [Interested in classification by use rather than just by description?](#)

Priority Number(s): **Aug. 23, 1996 JP1996000222114**

Abstract:

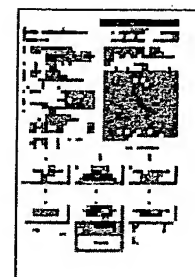


**Problem to be solved:** To suppress a rise in temperature of a battery caused by short circuit by containing a heat absorbing material of a polymer compound having a specified melting point and heat of fusion and a binder such as styrene - butadiene rubber in a positive electrode of a nonaqueous electrolyte secondary battery.

**Solution:** A nonaqueous electrolyte secondary battery has a positive electrode using a lithium containing composite oxide as an active material, a negative electrode comprising a carbon material capable of absorbing/releasing lithium, and a nonaqueous electrolyte. A polymer compound having a melting point of 90-130° C and a heat of fusion of 30J/g or more (such as polyethylene, polypropylene, and ethylene - ethyl acrylate - maleic anhydride copolymer) is contained in the positive electrode as a heat absorbing material, and has a globular shape of a mean particle size of 1-12μm, and the added content is 10% or less. As a binder, styrene - butadiene rubber, polyvinylidene fluoride, or polytetrafluoroethylene, etc., is contained in the positive electrode. The nonaqueous electrolyte secondary battery capable of satisfying battery characteristics and suppressing the rise in temperature of the battery when short circuit of the battery arose on the inside and the outside.

COPYRIGHT: (C)1998,JPO

▶ [See a clear and precise summary of the whole patent, in understandable terms.](#)



[View Image](#)

1 page

Family: [Show known family members](#)

Other Abstract Info: CHEMABS 128(16)194743Z CAN128(16)194743Z DERABS C98-222647  
DERC98-222647

Foreign References: No patents reference this one

---



Nominat this  
for the Gallery...

---

[Subscribe](#) | [Privacy Policy](#) | [Terms & Conditions](#) | [FAQ](#) | [Site Map](#) | [Help](#) | [Contact Us](#)

© 1997 - 2002 Delphion Inc.



(19)

(11) Publication number: **10064549 A**

Generated Document.

**PATENT ABSTRACTS OF JAPAN**(21) Application number: **08222114**(51) Intl. Cl.: **H01M 4/62 H01M 4/02 H01M 10/40**(22) Application date: **23.08.96**

(30) Priority:

(43) Date of application  
publication: **06.03.98**(84) Designated contracting  
states:(71) Applicant: **MATSUSHITA ELECTRIC IND CO  
LTD**(72) Inventor: **MURAOKA NORIKI  
OZAKI YOSHIYUKI  
KOBAYASHI SHIGEO  
WATANABE SHOICHIRO**

(74) Representative:

**(54) NONAQUEOUS  
ELECTROLYTE  
SECONDARY BATTERY**

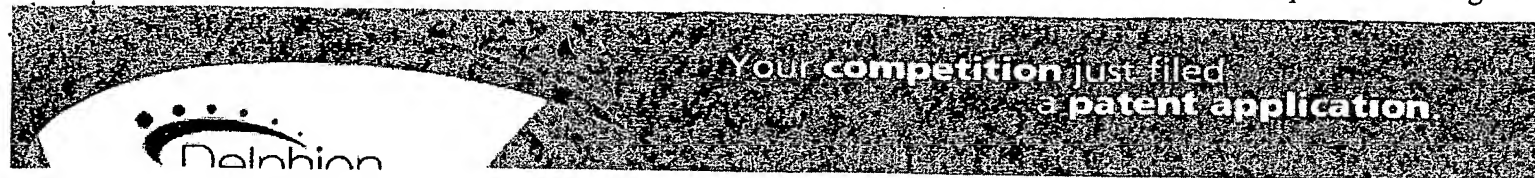
(57) Abstract:

**PROBLEM TO BE SOLVED:** To suppress a rise in temperature of a battery caused by short circuit by containing a heat absorbing material of a polymer compound having a specified melting point and heat of fusion and a binder such as styrene - butadiene rubber in a positive electrode of a nonaqueous electrolyte secondary battery.

**SOLUTION:** A nonaqueous electrolyte secondary battery has a positive electrode using a lithium containing composite oxide as an active material, a negative electrode comprising a carbon material capable of absorbing/releasing lithium, and a nonaqueous electrolyte. A polymer compound having a melting point of 90-130°C and a heat of fusion of 30J/g or more (such as polyethylene, polypropylene, and ethylene - ethyl acrylate - maleic anhydride copolymer) is contained in the positive electrode as

a heat absorbing material, and has a globular shape of a mean particle size of 1-12 $\mu$ m, and the added content is 10% or less. As a binder, styrene - butadiene rubber, polyvinylidene fluoride, or polytetrafluoroethylene, etc., is contained in the positive electrode. The nonaqueous electrolyte secondary battery capable of satisfying battery characteristics and suppressing the rise in temperature of the battery when short circuit of the battery arose on the inside and the outside.

COPYRIGHT: (C)1998,JPO



[ABOUT DELPHION](#)
[PRODUCTS](#)
[NEWS & EVENTS](#)
[MY ACCOUNT](#)
[IP SEARCH](#)

[Browse Codes](#)
[IP Listings](#)
[Prior Art](#)
[Derwent](#)
[Advanced](#)
[Boolean](#)
[Quick/Number](#)

[Log Out](#)
[Order Form](#)
[Work Files](#)
[View Cart](#)

[Expand Details++](#)

Derwent information adds clarity and brings out the real meaning of each patent or application – letting you complete your research more quickly with better results.

Derwent Records like this one are available FREE for a limited time.

[More Information ►](#)

**Non-aqueous electrolyte for secondary lithium battery - has anode which comprises binder and compound with predetermined enthalpy of fusion and melting as heat absorber**

Assignee: **MATSUSHITA DENKI SANGYO KK** Standard company (MATU...)

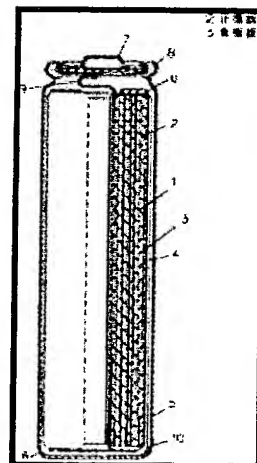
Inventor(s): **none**

Accession / Update: **1998-222647 / 199820**

IPC Class: **H01M 4/62 ; H01M 4/02 ; H01M 10/40 ;**

Derwent Classes: **A85; L03; X16;**

Manual Codes: **A12-E06A(Electrodes) , L03-E01C(Electrolytes) , X16-B01F1(Lithium-based) , X16-E09(Other electrode aspects)**



Derwent Abstract

**DERWENT  
RECORD**

[► Set Up Derwent  
Access Now](#)

(JP10064549A) The battery has an anode (2) which is made up of lithium oxide. A cathode (3) consists of carbon and one of metal oxide, lithium alloy and lithium metal. The cathode and anode are immersed in non-aqueous electrolyte. The anode comprises heat absorber and a binder. A molecular compound with enthalpy of fusion value more than 30 J/g and melting point >90- 130 deg. C is used as the heat absorber. One material selected from styrene-butadiene rubber, poly-vinylidene fluoride, tetra-fluoro-ethylene hexa-fluoride propylene co-polymer and acrylonitrile-butadiene rubber is used as the binder.

**Advantage** - Suppresses temperature rise during short circuit. Improves characteristics.

Abstract info: **JP10064549A: Dwg.1/1**

Images:

Family: **Patent**      **Issued**      **DW Update** **Pages** **Language** **IPC Class**  
**JP10064549A** \*    March 06, 1998    199820    7    English    H01M 4/62  
 Local appls.: JP1996000222114 ApplDate:1996-08-23 (96JP-0222114)  
 .....

Priority Number(s):

Application Number	Application Date	Original Title
<u>JP1996000222114</u>	Aug. 23, 1996	NONAQUEOUS ELECTROLYTE SECONDARY BATTERY

Extended Polymer Index:

Show extended polymer index

Related Accessions:

Accession	Type	Derwent Update	Derwent Title
C1998-070102	C		
N1998-176504	N		
2 items found			

Title Terms: NON AQUEOUS ELECTROLYTIC SECONDARY LITHIUM BATTERY ANODE COMPRISE BIND  
COMPOUND PREDETERMINED ENTHALPY FUSE MELT HEAT ABSORB

 [Pricing](#)  [Current charges](#)

Data copyright Derwent 2002

**Derwent  
Searches**



[Patent /  
Accession  
Numbers](#)



[Boolean Text](#)



[Advanced Text](#)



[Demo  
area...](#)

---

[Subscribe](#) | [Privacy Policy](#) | [Terms & Conditions](#) | [FAQ](#) | [Site Map](#) | [Help](#) | [Contact Us](#)

© 1997 - 2002 Delphion Inc.